

WHAT IS CLAIMED IS:

1. A method of treating a condition related to resistance to cell death, comprising administering an effective amount of a cupredoxin, or a variant or derivative thereof, to promote cell death in a cell demonstrating resistance to cell death.
2. The method of claim 1, wherein the cupredoxin, or the variant or derivative thereof, binds to tumor-suppressor protein p53.
3. The method of claim 1, wherein the cupredoxin is selected from a group consisting of an azurin, a pseudoazurin, a plastocyanin, and a rusticyanin.
4. The method of claim 3, wherein the cupredoxin is an azurin.
5. The method of claim 4, wherein the cupredoxin is an azurin comprising the amino acid sequence of SEQ ID NO:1, or an amino acid sequence having at least 90% sequence identity with SEQ ID NO: 1.
6. The method of claim 5, wherein the cupredoxin is an azurin comprising the amino acid sequence of SEQ ID NO:1, or an amino acid sequence having at least 90% sequence identity with SEQ ID NO: 1 and wherein the cupredoxin binds a tumor-suppressor protein p53.

7. The method of claim 4, wherein the azurin comprises the amino acid sequence of SEQ ID NO: 6.
8. The method of claim 4, wherein the azurin comprises the amino acid sequence of SEQ ID NO: 7.
9. The method of claim 3, wherein the cupredoxin is a plastocyanin.
10. The method of claim 9, wherein the cupredoxin is a plastocyanin comprising the amino acid sequence of SEQ ID NO:2, or an amino acid sequence having at least 90% sequence identity with SEQ ID NO: 2.
11. The method of claim 3, wherein the cupredoxin is a pseudoazurin.
12. The method of claim 11, wherein the cupredoxin is a pseudoazurin comprising the amino acid sequence of SEQ ID NO: 4, or an amino acid sequence having at least 90% sequence identity with SEQ ID NO: 4.
13. The method of claim 3, wherein the cupredoxin is a rusticyanin.
14. The method of claim 13, wherein the cupredoxin is a rusticyanin comprising the amino acid sequence of SEQ ID NO: 3, or an amino acid sequence having at least 90% sequence identity with SEQ ID NO: 3.

15. A method of treating a condition related to resistance to cell death, comprising administering an effective amount of cytochrome C₅₅₁, or a variant or derivative thereof, to promote growth arrest in a cell demonstrating resistance to cell death.

16. The method of claim 15, wherein the cytochrome C₅₅₁ comprises the amino acid sequence of SEQ ID NO: 5, or an amino acid sequence having at least 90% sequence identity with SEQ ID NO: 5.

17. The method of claim 15 wherein the condition related to resistance to cell death is selected from the group consisting of human melanoma, leukemia, breast cancer, ovarian cancer, lung cancer, mesenchymal cancer, colon cancer and aerodigestive tract cancers.

18. The method of claim 17 wherein the condition related to resistance to cell death is breast cancer.

19. The method of claim 15, further comprising administering an effective amount of a cupredoxin selected from a group consisting of an azurin, a pseudoazurin, a plastocyanin, and a rusticyanin.

20. The method of claim 1 wherein the condition related to resistance to cell death is selected from the group consisting of human melanoma, leukemia,

breast cancer, ovarian cancer, lung cancer, mesenchymal cancer, colon cancer and aerodigestive tract cancers.

21. The method of claim 20 wherein the condition related to resistance to cell death is breast cancer.